that the personal identification number is randomly distributed over an available number domain; and

converting a first predefinable natural number n1 of digits of the binary number into a first decimal number d1,

wherein:

the first predefinable natural number n1 of digits is selected so as to yield a first natural number z1 such that a quotient $2^{n1}/(z1*9)$ is close to 1;

a first decimal digit of the personal identification number receives a value first decimal number d1 modulo 9; and

N-1 further groups of a second predefinable number n2 of digits of the binary number are converted each time into N-1 decimal numbers second decimal number d2 through Nth decimal number dN, the second predefinable number n2 being selected so as to yield a second natural number z2 such that a quotient $2^{n2}/(z2*10)$ is close to 1, to satisfy a condition of $0<=2^{n2}$ modulo $10<3$, and decimal digits 2 through N of the personal identification number receive values di modulo 10, i=2 through N.

37. (New) The method of claim 36, wherein the first predefinable natural number n1 and the second predefinable number $n2<=16$ are predefined.

REMARKS

Claims 15 to 37 are now pending in the above-identified application. New claims 36 and 37 have been added. Claims 19, 20, 23, 26, 28 and 29, have been amended. No new matter has been added.

Applicants respectfully request reconsideration of the present application in view of this response.

Applicants appreciate the acknowledgment that all priority documents have been received and placed of record in the file.

Applicants thank the Examiner for indicating that claims 29 to 34 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claim 29 has been rewritten into independent form and to include all

features of claim 18 (from which claim 29 directly depended). No new matter has been added. Claims 30 to 34 depend either directly or indirectly from claim 29. Accordingly, withdrawal of the objection to claims 29 to 34 is respectfully requested, and Applicants respectfully submit that claims 29 to 34 are in condition for allowance.

Claims 19, 20, 23, 26 and 28 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Specifically, the Office Action requested that claims 19, 20, 23, 26 and 28 include a "spell[ing] out" of certain features, e.g., "n1," in the claims. In accordance with the request, claims 19, 20, 23, 26 and 28 have been amended above to include a spelling out of the certain features. Accordingly, withdrawal of the rejection of claims 19, 20, 23, 26 and 28 is respectfully requested, and Applicants respectfully submit that claims 19, 20, 23, 26 and 28 are in condition for allowance.

Claims 18, 21, 24, 25, 27 and 35 were rejected under 35 U.S.C. § 102(b) in view of U.S. Patent No. 4,376,279 to Perlman et al. (the "Perlman reference").

The Perlman reference purportedly concerns a personal identification system having a generator which generates an "Offset Number" which is recorded on the magnetic stripe of a card, along with an account number of the person to whom the card is issued. See Abstract, lines 1-5. The Perlman reference further states that to generate the "Offset Number" the account number is entered and transformed before being stored to initialize a first feedback shift register. See Abstract, lines 8-10. The Perlman reference further states that the person enters a chosen alphanumeric sequence, the alphanumeric sequence after undergoing transformation is stored to initialize a second feedback register. See Abstract, lines 10-14. The Perlman reference further states that when both registers have been initialized they are reinitialized by different parts of different digits of the transformed sequence of digits. See Abstract, lines 14-16. The Perlman reference further states that different digits of the two registers are used to initialize a control feedback shift register which when reaching a selected state in its cycle of states controls the generator to generate the "Offset Number," based on a selected mapping of the digits, then present, in the first and second feedback shift registers. See Abstract, lines 16-22. The Perlman reference then refers to using the card by entering it into a verifier, therein the account number and "Offset Number" on the magnetic stripe are read out, and the intended user enters the alphanumeric sequence, and the verifier, like the generator, generates an "Offset Number." See Abstract, lines 22-26. The Perlman reference

further cautions that "[o]nly if the PIN [alphanumeric sequence] entered into the verifier is identical to that entered into the generator, does the verifier produce an Offset Number identical to that read off the card, there by indicating that the card user is the one to whom the card was issued." See Abstract, lines 26-30.

Claim 18 recites:

> A method for generating a personal identification number (PIN) having a number of N decimal digits, to be used for money cards and other security-requiring devices, comprising:
>
> generating the personal identification number from a binary number having L digits so that the personal identification number is randomly distributed over an available number domain.

In contrast, the Perlman reference refers to entering an account number via a dedicated input device and entering a personal identification number into a different dedicated device, and that both numbers are individually processed. Col. 3, lines 38-44. The Perlman reference further refers to having both numbers undergoing a distinct succession of transformations and a mapping with distinct portions of a transformed 20-digit decimal sequence, where the two arguments derived from the transformed account number and the transformed personal identification number and the transformed 20-digit decimal sequence are then mapped into an "Offset Number," comprised of 10 decimal digits. Col. 3, lines 44-51. The Perlman reference refers to the overall mapping of the account number and the personal identification number into a 10 digit "Offset Number" is a "many-to-one" into mapping which "guarantees irreversibility" whereby the personal identification number "cannot" be determined from known account number-"Offset Number" combinations. The Perlman reference is not believed to teach or identically disclose (as it must for anticipation) the features of claim 18, including a method for generating a personal identification number having N-decimal digits by generating the personal identification number from a binary number having L digits so that the personal identification number is randomly distributed over an available number domain. Accordingly, the Perlman reference does not identically disclose or even suggest the features of claim 18. Withdrawal of the rejection of claim 18 under 35 U.S.C. § 102(b) is respectfully requested.

Since claims 21, 24, 25, 27 and 35 depend from claim 18, those claims are allowable for at least the same reasons as claim 18.

New claims 36 and 37 contain analogous features to certain claims of claims 18 to 35; accordingly, it is respectfully submitted that those claims are also allowable over the art cited in the Office Action for essentially the same reasons as for certain claims of claims 18 to 35. No new matter has been added.

In summary, it is respectfully submitted that all of claims 15 to 37 of the present application are allowable for the foregoing reasons.

CONCLUSION

In view of all of the above, it is believed that the rejections of claims 18 to 28 and 35 and the objections to claims 29 to 34 have been obviated. Accordingly, it is respectfully submitted that all claims 15 to 37 are allowable. It is therefore respectfully requested that the rejections and objections be reconsidered and withdrawn, and that the present application issue as early as possible.

If it would further allowance of the present application, the Examiner is invited to contact the undersigned at any time.

Respectfully submitted,

By: [signature]
Reg. No. 47084

Dated: July 30, 2003

By: [signature]
Richard L. Mayer
(Reg. No. 22,490)

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AMENDED VERSION SHOWING CHANGES MADE
U.S. Application Serial No. 09/937,923
Attorney Docket No. 2345/165

IN THE CLAIMS:

Please amend without prejudice claims 19, 20, 23, 26, 28 and 29, as follows:

19. (Amended) The method of claim 18, further comprising:

converting a first predefinable natural number n1 of digits of the binary number into a first decimal number d1;

wherein:

the first predefinable natural number n1 of digits is selected so as to yield a first natural number z1 such that a quotient $2^{n1}/(z1*9)$ is close to 1;

a first decimal digit of the personal identification number receives a value first decimal number d1 modulo 9; and

N-1 further groups of a second predefinable number n2 of digits of the binary number are converted each time into N-1 decimal numbers second decimal number d2 through Nth decimal number dN, the second predefinable number n2 being selected so as to yield a second natural number z2 such that a quotient $2^{n2}/(z2*10)$ is close to 1, to satisfy a condition of $0<=2^{n2}$ modulo 10<3, and decimal digits 2 through N of the personal identification number receive values di modulo 10, i=2 through N.

20. (Amended) The method of claim 18, wherein the first predefinable natural number n1 and the second predefinable number n2<=16 are predefined.

23. (Amended) The method of claim 18, wherein the binary number has a length L=3*n3, third natural number n3 groups of three digits of the binary number are converted into third natural number n3 decimal digits to generate third natural number n3 digits of the personal identification number[, and n3 is a natural number].

26. (Amended) The method of claim 25, wherein a set of numbers 0 through 8191 is allocated to natural number n5 subsets Ml, . . . , Mn5, and a preset value di is added to the

resultant decimal number if it is an element of [the] a set Mi, where 999<first decimal number d1<second decimal number d2< . . . <third decimal number dn5<1809 [and n5 is a natural number].

28. (Amended) The method of claim 27, wherein a set of numbers 0 through 65535 is allocated to natural number n5 subsets Ml, . . . , Mn5, and a preset value di is added to the resultant decimal number if it is an element of [the] a set Mi, where 9999<first decimal number d1<second decimal number d2< . . . <third decimal number dn5<34465 [and n5 is a natural number].

29. (Amended) A [The] method [of claim 18,] for generating a personal identification number (PIN) having a number of N decimal digits, to be used for money cards and other security-requiring devices, comprising:

generating the personal identification number from a binary number having L digits so that the personal identification number is randomly distributed over an available number domain, wherein:

a first digit of the personal identification number is generated by:

generating a pseudo-random number composed of up to 36 hexadecimal digits from a binary number of a length L;

converting each hexadecimal digit of the pseudo-random number using one different one out of 36 possible different mathematical mappings of the 36 hexadecimal digits into digits 1 through 9, into another digit of the digits 1 through 9, forming a generated number;

linking up to 36 decimal digits of a generated number in a mathematical operating to form a decimal digit that is unequal to zero and that represents a first digit of the personal identification number, to average out a probability of a particular personal identification digit occurring; and

a second digit and each following digit of the personal identification number is generated by:

generating another pseudo-random number composed of up to 210 hexadecimal digits from the binary number of length L;

converting each hexadecimal digit of the another pseudo-random

number into one decimal digit using each time one different one out of a 210 possible mathematical mappings of hexadecimal digits into decimal digits; and

linking up to 210 decimal digits of a generated number in a mathematical operation to form a decimal digit representing a particular digit of the personal identification number, to average out the probability of the particular personal identification digit occurring.

Please add without prejudice new claims 36 and 37, as follows:

36. (New) A method for generating a personal identification number (PIN) having a number of N decimal digits, to be used for money cards and other security-requiring devices, comprising:

generating the personal identification number from a binary number having L digits so that the personal identification number is randomly distributed over an available number domain; and

converting a first predefinable natural number n1 of digits of the binary number into a first decimal number d1,

wherein:

the first predefinable natural number n1 of digits is selected so as to yield a first natural number z1 such that a quotient $2^{n1}/(z1*9)$ is close to 1;

a first decimal digit of the personal identification number receives a value first decimal number d1 modulo 9; and

N-1 further groups of a second predefinable number n2 of digits of the binary number are converted each time into N-1 decimal numbers second decimal number d2 through Nth decimal number dN, the second predefinable number n2 being selected so as to yield a second natural number z2 such that a quotient $2^{n2}/(z2*10)$ is close to 1, to satisfy a condition of $0<=2^{n2}$ modulo $10<3$, and decimal digits 2 through N of the personal identification number receive values di modulo 10, i=2 through N.

37. (New) The method of claim 36, wherein the first predefinable natural number n1 and the

second predefinable number n2<=16 are predefined.